BTEC Assignment Brief

Qualification	Pearson BTEC International Level 3 Foundation Diploma in Applied Science Pearson BTEC International Level 3 Diploma in Applied Science Pearson BTEC International Level 3 Diploma in Biomedical Science Pearson BTEC International Level 3 Diploma in Environmental Science Pearson BTEC International Level 3 Extended Diploma in Applied Science Pearson BTEC International Level 3 Extended Diploma in Biomedical Science Pearson BTEC International Level 3 Extended Diploma in Environmental Science
Unit number and title	**Unit 25: Water Quality**
Learning aim(s)	**C:** Investigate basic water quality of an aquatic habitat
Assignment title	**Water quality of an aquatic habitat**
Assessor	
Issue date	
Hand in deadline	

Vocational Scenario or Context	You are a laboratory technician working in an analytical laboratory for a local water supply company and in this role, you have learnt that to test the quality of water. This includes water in rivers, sea water, lakes, tap water, sewerage water and water flowing into rivers and streams from the industry and from farms. Health and safety is an important factor for the scientists and technicians who will use various methods for collecting samples of the water to be tested. You find the quality of the water by using Biological, Chemical and Physical methods and tests. You use a variety of laboratory methods and scientific instruments such as colorimetry, titrations and mass spectroscopy. Because of this your department regularly receives visits from schools, and your supervisor has allocated you the task of testing out an assessment that will be used by the 'BTEC students' undertaking work experience in your laboratory.

Task	You will need to **investigate** the water quality of an aquatic habitat, **report, analyse** and present the outcomes from your investigation. Furthermore, your will need to **evaluate** the sampling techniques and tests used to determine water quality. All of this will be underpinned with an **explanation** of the biological, chemical and physical indicators and tests for water quality. In your final report you will: • **Explain** biological, chemical and physical indicators and tests for water quality. Outline your test or method and provide information on expected positive and negative outcomes. Explain the science that underlies the

	test and the result. • **Investigate** the water quality of an aquatic habitat over a period of time using methods and tests that are biological, chemical and physical in nature in order to observe trends. Produce photographic evidence, results tables, data and a diary/logbook. Carry out a risk assessment for the sampling technique, chemicals and equipment to be used before carrying out the investigation, identify any hazards and risks and potential impacts on the environment. • **Analyse** and present your conclusions from your investigation of an aquatic habitat. Present your findings in suitable formats such as graphs, tables, charts and report on any trends/patterns you have found from the specified period of time. Report what your findings reveal about the presence and quantities of substances etc and conclusions about the quality of water in the aquatic habitat. Discus how this will affect the ecosystem and make recommendations to improve the quality of the water. • **Evaluate** sampling techniques and tests to determine water quality by making judgements on accuracy, reliability and validity. Include the strengths and the weaknesses of the sampling technique, the equipment/apparatus used, any improvements that could be made to the method used or use of alternative approaches such as using a water quality testing kit at the point of sampling rather than testing in the laboratory. Compare the data you have collected with one that was collected from another similar source such as from the same river upstream or downstream or compare with secondary data that you have researched from a similar study. Explain any similarities and differences you have found and account for any presence or absence of any substances or microorganisms from your own investigation. Include any limitations from your own investigation such as the environmental conditions during sampling. • **Produce** a report on the quality of the water from your investigation of a given aquatic habitat. Present your report using an appropriate scientific format. Use your data and information you have collected throughout your project. Use acceptable scientific terminology and protocol.
Checklist of evidence required	A research report that includes: • An explanation of the biological, chemical and physical indicators and tests for water quality • An investigation of the water quality of an aquatic habitat • A report on the quality of water from your investigation • An analysis and presentation of your conclusions from your Investigation • An evaluation of sampling techniques and tests to determine water quality.

Criteria covered by this task:	
Unit/Criteria reference	To achieve the criteria, you must show that you are able to:
C.D3	Evaluate sampling techniques and tests used in determining water quality.
C.M5	Analyse and present conclusions, with recommendations, for the investigation of an aquatic habitat.
C.P7	Produce a report on the water quality of a given aquatic habitat.
C.P6	Investigate the basic water quality of an aquatic habitat over a period of time.
C.P5	Explain biological, chemical and physical indicators and tests for water quality.
Sources of information to support you with this Assignment	All sources of information suggested are UK based. Centres are free to amend these sources to those available in the Country of delivery where more appropriate. www.edu.rsc.org.uk – Streamwatch – a UK water analysis science project www.STEM.org.uk - Water quality; Estimating environmental damage in freshwater www.watertreatmentservices.co.uk – Information about water testing www.nationalgeographic.org – Water quality in freshwater systems Within the copyright laws learners could search YouTube for:– Water quality sampling and analysis; Introduction to water quality testing; Water quality testing methods; Water quality chemistry tests explained.
Notes to the Assessor and technician	The practical activities suggested for this assignment are required to be safety checked by the Centre before use. Pearson Education can take no responsibility for the safety of any practical activities. Before doing any practical activity, you should always carry out your own risk assessment and refer to the necessary regulations. In particular, any local rules issued by your employer must be obeyed, regardless of what is suggested here. Centre should use Health and Safety information provided by a reputable source. In the UK such an example organization is CLEAPSS http://science.cleapss.org.uk/